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Original Article

Anatomy Section

Body Donation after Death: The Mental Setup of Educated People

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ABSTRACT

Introduction: Without dissection of cadavers teaching and learning of anatomy is nearly difficult; there remains a gap between the practical knowledge and the gathered theoretical knowledge. But there is a scarcity in the availability of the donated bodies for the sake of medical education. On the other hand a large number of people in our country are in waiting list for organ transplantation which could be overcome by deceased organ donation.

Aim: Aim of the study was to evaluate the awareness regarding body donation after death.

Materials and Methods: A cross-sectional study was conducted among medical students, engineering students and doctors in Indian population. Total 300 participants were answered the questionnaire providing information about the knowledge and attitude towards body and organ donation.

Result: 46.33% of entire study group had strongly positive attitude about cadaveric organ donation and 17% had no idea about this. 18% of total participants were unwilling for body donation after death.

Conclusion: The present study has been done elaborately to find out the different barriers for body or organ donation. It is clear from the study that though there is high level of awareness, nobody has filled up the pledge form till now. It indicates that there is a gap between the knowledge and motivation for organ and body donation after death which has to be overcome by proper guidance and education. Media and other voluntary organisations could take an important role for this purpose.

Keywords: Awareness, Cadaver, Medical and nonmedical population

INTRODUCTION

Within a short stipulated time period, teaching of anatomy to the undergraduate students is becoming very much difficult. Almost all first year students consider anatomy as one of the toughest subject in the M.B.B.S. curriculum. Not only are the undergraduates, the postgraduate students are also facing the same difficulties. In this context teaching or learning of anatomy without human body dissection is very difficult. But now-a-days, the body dissection is facing challenges due to its scarcity in medical courses (both for undergraduate and postgraduate). The same thing happens in case of organ donation after death in our country. Due to the scarcity of stored organ in most of the organ-banks, a large number of people are in waiting list for organ transplantation [1]. Even though we know that human organs can be replaced by human organ only rather than the prosthesis, in India the concept of the body or organ donation for a novel cause is still not so much popularised. There may be so many reasons which ultimately prevent the Indian population from body donation. In Japan it is practiced to hand over the ashes of the dissected cadavers of donated bodies to their relatives [2]. It has changed the mentality of Japanese towards the body donation either for the medical education or organ replacement. According to Sakai [2] most of the cadavers for dissection are donated and people in Japan are glad to donate their bodies unconditionally for the sake of medical education or research purpose. Though there are so many current tools which could be applied, but to create an idea of the human body and the perception of the human organ for a medical student, the dissection of human cadavers has no alternative [3].

In India so many medical colleges are there but still no means of smooth availability of sufficient cadavers are present for teaching purpose or organ transplantation. Why there is scarcity of availability of donated bodies in India (the second most populated country), is a big question. Though in India dissection of human cadaver was started by Sushruta at 500 BC as per the ancient history [4], there might be some gap between the medical professionals and the common people in conveying the awareness of body donation as a novel programme. Ignorance, religion, culture and other factors may be the hindrances in involving the people for body donation in our country. The time is yet to come to motivate our mind for organ or body donation for the sake of medical science or to save one's life. A detail study has been done to see the mentality and awareness towards body donation and organ replacement among the educated people and those who are in medical profession also. It is expected that the study will be helpful in future for further planning of studies to motivate the mentality towards the body donation.

MATERIALS AND METHODS

A cross-sectional survey was conducted in Kolkata among 100 medical (M.B.B.S) students (Male: Female=70:30), 100 Engineering students (Male: Female = 60:40) and 100 doctors (Male: Female = 50:50) from April 2014 to June 2014 to evaluate the knowledge and attitude towards the organ and body donation.

For the present study a questionnaire was prepared [Table/Fig-1] providing information about demographic features, knowledge of organ and body donation, attitudes towards cadaveric organ donation and body donation, causes of unwillingness and reasons behind not to filled-up the pledge form.

Most of the questions were multiple choices and included most commonly expected possible answer and a final option left blank for the respondent to answer as they wish.

The participants were categoriesd into two different age groups, the medical and engineering students were considered as young group (age 18-22 years) and the doctors as adult group (35-45 years). The MBBS students were included in the study to know their attitude about cadaveric organ donation/body donation as they gathered knowledge about the necessity of body donation during the course and curriculum. To compare the attitude among acquainted and non-acquainted participant, engineering students were taken for the studies as they were not practically exposed to the cadaver dissection. To compare the changes of attitude after completion of medical course; the doctors are also included in this survey. So, three parameters like gender, age and acquainted and non-

ATTITUDE TOWARDS ORGAN/BODY DONATION

1. Age (year):
2. Sex:
   - Male
   - Female
3. Religion:
   - Hinduism
   - Christianity
   - Islam
   - Others(specify)_____
4. Educational Qualification:
   - Inter/Higher secondary
   - Postgraduate(specify)_____
   - Graduate
   - Other_____

OPINION REGARDING ORGAN/BODY DONATION:

5. What is your idea about Organ Donation:
   - Organ donation from living donor only
   - Organ donation from living & cadaver both
   - Organ donation from cadaver only
   - No idea
6. What is your idea about Body Donation:
   - For dissection purpose of Medical students only
   - Both
   - For purpose of Organ transplantation only
   - No idea
7. Are you willing to donate your Organ after death:
   - Yes without any hesitation
   - No, absolutely not
   - Yes but need persuasion
   - No Idea
8. Do you want to donate your Body after death:
   - Yes, only for organ transplantation
   - For both purpose
   - Yes, only for dissection purpose
   - Unwilling
9. Reason behind Unwillingness regarding Body/Organ donation:
   - Organ could be wasted
   - No reason
   - Don't want to cut body into pieces
   - No knowledge about this
   - Organ/Body could be Misused/abused
   - Any other reason(s)
   - Religious barrier
   - Prevented by Family Members
   - Psychological Anxiety

FOR THOSE WHO ARE WILLING ONLY:

10. From where you are motivated for Organ/Body donation :
    - By Medical person/ Doctor
    - By Family members
    - By Media(TV, Radio, Newspaper, Internet etc)
    - By Voluntary Organization
11. Have you already filled up pledge form:
    - Yes
    - No
12. Reason behind willingness to donate body/organ but not filled up pledge form till now:
    - Not Decided
    - Religious Barrier
    - Will do Later
    - Family not Agreed
    - Want to know much more
    - No benefit
    - No idea about procedure

    Any other reason(s)_____
13. What is your opinion regarding positive attitude of Body/ Organ donation:
    - To be live by other peoples life
    - To save economy by avoiding cremation in poor socioeconomic people
    - To avoid unnecessary wastage of body by cremation
    - To save other needy people's live
    - To avoid environmental pollution
    - To facilitated medical teaching process more
    - All of above

[Table/Fig-1]: Questionnaire

acquainted participant were used in this study purpose.

STATISTICAL ANALYSIS

Authors used Graph pad Prism 5 program for data analysis. The chi-square test was used for assessment of differences among different groups. All statistical tests were two sided and p-value of < 0.05 was considered to indicate the significance.

RESULT

Questionnaires were answered by all 300 participants. The overall literacy rates of the participants were high and most of them belong to upper or middle socioeconomic class. All participants were Hindu. Majority of them were male (60%). Total 200 (66.6%) respondents were familiar with the study topic; while 100 (33.3%) were unfamiliar. The acquainted group included 100 young (undergraduate student) and 100 adult (passed out the course) participants whereas 100 non-acquainted participants only young (undergraduate student) group. Summary of distribution of participants based on gender and relative familiarity about the study topic showed in [Table/Fig-2].

Maximum participants (67.33%) expressed their positive response towards cadaveric organ donation. Male respondents showed strongly positive attitude without any hesitation whereas females needed persuation. Adults were more interested than young groups. Total 47 participants answered in absolutely negative choice among which males were more in number (male=35, female=12). On the other hand, 17% participants were expressed as 'no idea' about the body or organ donation where females were more in number (females- 24.16%, male-12.22%). [Table/Fig-3] showed detail about the attitude towards cadaveric organ donation among different parameters.

Regarding body donation, majority (82%) of the respondent expressed their positive attitude; percentage was highest in adult group (88%) in compare to young (79%); responses of medical (78%) and engineering (80%) students were very close. But the result regarding the opinions about the purpose of body donation was different among different groups [Table/Fig-4]. While male participants were more interested to donate their body for organ transplantation, females wished to donate their bodies for both purposes – dissection and organ transplantation. Total responses for organ transplantation were high but body donation for dissection purpose only was negligible from all participants.

Different sources were responsible for motivation of body donation which has been represented in pie chart [Table/Fig-5]. Adult group were self motivated maximally. Medical students (71.8%) were motivated by medical camp whether media and family members were responsible for motivation of the engineering students. Though a high percentage of participants expressed their willingness to donate their bodies, no one had filled up the pledge form till now. The reasons behind this were shown by bar diagram [Table/Fig-6] from where it was clear that religious and familial barriers are almost negligible. Maximum respondents expressed that they will fill up and submit the pledge form later. Total 54 participants were unwilling for body donation. A major difference was seen between the young and adult group, but little or no difference was seen between other two parameters (male/female and acquaintance/ non acquaintance) regarding percentage of unwillingness [Table/Fig-4]. Different causes of unwillingness had been shown by bar diagram [Table/Fig-7] which made it clear that the lack of knowledge was the main cause for engineering student but condition of the cadaver in the dissection hall was the main barrier in case of medical students and doctors.

Statistical analysis by Chi-square test showed that attitude regarding organ donation was significant between male and female (p-value 0.0010) and between young and adult (p-value <0.0001), no significance between medical and engineering group was found. For body donation, analysis by chi-square test indicated statistically significant value (p-value 0.0014) only between male and female, but other two parameters showed no statistical significance.

Age	Participants	Male (n)	Female (n)	Both (n)
Young group	Engineering Students (non acquaintance)	60	40	100
	M.B.B.S Students (acquaintance)	70	30	100
Adult group	Doctors (acquaintance)	50	50	100
Total		180	120	300

[Table/Fig-2]: Distribution of different parameters

DISCUSSION

The transplantation of organ is often the only treatment in end stage organ failure. The demand of organs significantly surpasses the number of donors everywhere in the world. To overcome the crisis, more awareness is needed regarding the cadaveric organ transplantation. Spain has the highest number of cadaveric organ donation rate in world [5]. Results of various studies [6-11] among different countries are represented in [Table/Fig-8] and have been compared with the present study. In Denmark 74% of general population are expressed their willingness towards organ donation [8]. Turkey has found 49.5% positive response among University students [9]. Previous studies have reported that MBBS students expressed a very high (85-88%) response for cadaveric organ donation or translation [12,13]. In Italy, cadaveric organ donation rate has been increased from 550 to 1334 in ten years [14]. It has been reported that females are more interested than male for organ donation after death [9]. Deceased organ donation rate (2012) per million populations in India is 0.16 [15]. Present study shows a total 46.33% strong positive response without any hesitation and 21%

Attitude for Cadaveric Organ Donation	Total n (%)	Male n (%)	Female n (%)	Engineering Students n (%)	Medical students n (%)	Doctors n (%)
Strongly positive without any hesitation	139 (46.33%)	92 (51.11%)	47 (39.16%)	36 (36%)	30 (30%)	73 (73%)
Positive but need persuation	63 (21%)	31 (17.22%)	32 (26.66%)	25 (25%)	32 (32%)	6 (6%)
Absolutely negative	47 (15.66%)	35 (19.44%)	12 (10%)	12 (12%)	14 (14%)	21 (21%)
No idea	51 (17%)	22 (12.22%)	29 (24.16%)	27 (27%)	24 (24%)	0 (0%)

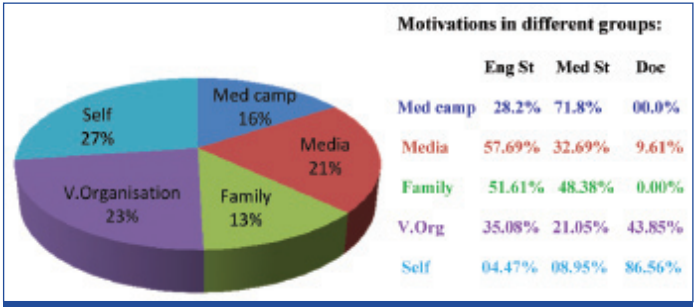
[Table/Fig-3]: Attitude towards cadaveric organ donation

		Total n (%)	Male n (%)	Female n (%)	Eng-Students n (%)	Med- students n (%)	Doctors n (%)
Willing:	For Organ transplantation	173 (57.66%)	116 (64.44%)	57 (47.5%)	59 (59%)	52 (52%)	62 (62%)
	For Dissection purpose	17 (5.66%)	11 (6.11%)	6 (5%)	9 (9%)	6 (6%)	2 (2%)
	For Both	56 (18.66%)	21 (11.66%)	35 (29.16%)	12 (12%)	20 (20%)	24 (24%)
Unwilling:		54 (18%)	32 (17.77%)	22 (18.33%)	20 (20%)	22 (22%)	12 (12%)

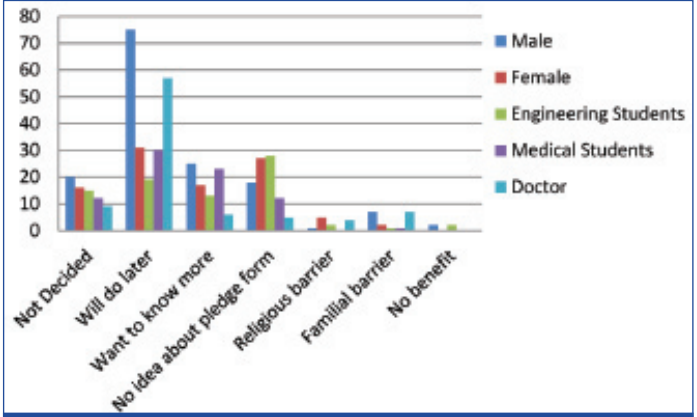
[Table/Fig-4]: Attitude of entire study group towards body donation

are willing but need persuation regarding cadaveric organ donation. Willingness is also associated with age. Various researchers [16-18] have shown that young people are more willing to donate their body than old one which is not corroborative with the present study.

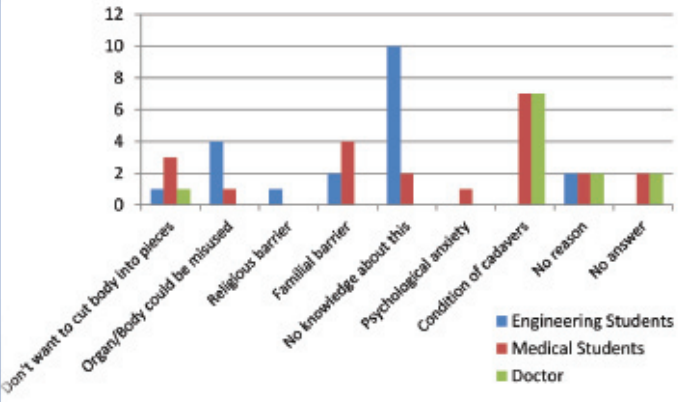
While attitude regarding cadaveric organ donation is good, willingness to donate body for teaching purpose is very poor. Only 5.66% respondents are willing to donate their body for dissection purpose and 18.66% for both purposes. So, it is suggested that more information and education is needed regarding body donation so that the responses would not be only for organ donation but for dissection purpose also. As the study of human body is intimately related with dissection of cadaver, it is necessary to give a special attention for proper source and supply of cadavers for educational purposes like anatomy. Previously the unclaimed bodies were the only sources for dissection, but now a day's body donation and anatomy act is there. But still it's not enough or insufficient in number as there is increased numbers of medical colleges. Though prosection has been accepted and used for teaching purpose in different medical colleges, still proper and regular supply of cadavers is very much necessary as the number of students (post- graduates, MBBS, Dental, Paramedical, and Nursing) has been increased in each medical colleges. Awareness is very much necessary about the concept of cadaver donation and its effectiveness in medical profession. But it is not easy to persuade the people as various barriers are there. Authors have seen that non acquaintance group is unwilling to donate their body as majority of them have no knowledge about this. It could be solved by media, voluntary organisation or by more health/medical education camps, exhibitions in school, colleges and in public places on a regular basis. From the present study it is clear that MBBS students and doctors were not agree to donate their body for dissection purpose due to experience of dissection hall. Dishonoured condition and mishandling of cadavers is a bar for body donation in acquaintance group. Previous study among medical professionals are also showed that only 22% physicians are willing to donate their bodies for medical education, 85% believed that donated bodies were misused [19]. A study among Turkish anatomist is reported that 63.9% would not consider themselves to donate their bodies as they were not prepared. So, shortage of organ or body is not due to ignorance or misconception only, but it is the thought of being a dissected cadaver. Practice of honouring the cadaver by students and teachers from the commencement of medical course session should be followed as in Korea and Thailand [20,21]. The study of Ranjan R et al., [22] focuses the effect of public awareness drive by various campaigns. Although all religions in the world support and encourage the act of donation, the final decision is left to personal conscience. So, proper counselling and guidance is very much necessary by which we could significantly turn the potential donor into an actual donor.



[Table/Fig-5]: Percentages of Motivations in different study groups from different sources.
Eng St: Engineering students; Med St: Medical students; Doc: Doctors, V. Org: Voluntary Organization



[Table/Fig-6]: Reasons of not filled up pledge form



[Table/Fig-7]: Causes of unwillingness

CONCLUSION

Media and other social organisations can play an important role as mediators which could remove the hesitation so that the people would come forward to donate their bodies. The mass of the people should be convinced to accept that it is better to donate their bodies after death either for the organ donation or for the research in medical education. There are some limitations like people from other professions and uneducated people were not included in the present study. But the present article will certainly have some role in creating the social wave for the generous act of body donation for educational purpose or organ transplantation which is of upmost need at the present moment in our country.

Year	Country	Participants	Willing	Unwilling	No answer/ No idea
2004	Spain [4]	General population	60%	33%	7%
2004	Turkey [5]	Anatomists	69.9%	28.9%	1.2%
2005	Denmark [6]	ICU Staffs	49%	11%	-
2006	China [7]	University students	61.3%	08.5%	30.3%
2006	Turkey [8]	Medical students	58.4%	22.7%	18.8%
2009	France [9]	1st year MBBS students	81.1%	13.5%	5.4%
2014	Malaysia [10]	General population	43.6%	10.6%	45.8%
2014	India (PRESENT STUDY)	Doctor, MBBS and Engineering students	67.33%	15.66%	17%

[Table/Fig-8]: comparison of present study with others

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